**Science Project Phase IV: Writing a Report**

In this phase of the project you will be compiling essentially what will be a detailed lab report about your experiment/project. Your lab report should include the following components and adhere to the accompanying guidelines:

**Title of Lab:** Your title should comprehensively yet concisely describe what your experiment or project was about. PLEASE do **NOT** simply write, “Science Fair Project” as your title, it tells the reader nothing except that you had an assignment to do!

**Research:** You will write about a 2- paragraph summary of the research you gathered in Phase II.

**Purpose:**

This is where you state the objectives of the lab, what question(s) you are trying to answer. Some guideline questions to ask before you write this are: What are we studying? What do we want to know? What do we need clarified? You may need more than one sentence. Include any preliminary observations or background information about the subject.

**Hypothesis:**

A statement of what you predict will happen. (Do not use “I think” or “I know”)

This is an educated guess, a possible solution to the problem. You should think about what you already know when writing your hypothesis. The hypothesis must relate to the purpose of the lab.

It will be proven or disproved by the lab and resulting data. **This must be written before you begin*!***

Make sure you write a complete sentence, and be sure your hypothesis is testable.

It is better to use the ***If…..Then*** format.

For example: ***If*** leaf color is related to temperature, ***then*** exposing plants to low temperatures will result in changes in leaf color. Notice there are two variables: the manipulated and the responding variable.

**Materials List:**

(not in a paragraph form) the materials you actually used. Do not just copy a list from the book or handout if you didn’t use those items. Any items you add should be mentioned as well. This needs to be precise; items should be specific and measurements accurate.

**Procedure:**

You may make a numbered **list** for the steps you followed as you did in the experiment. Once again, be precise, specific and complete. For example, do not simply write, "set up the equipment", state exactly what was done. Do not write it down if you didn’t do it, but make sure that you DO include all the steps that you took. Include any conditions present during the experiment that may have influenced results. Your procedure should be written so that anyone else could repeat the experiment.

**Results and Analysis:**

This is an important section that contains the results of your lab.

**A.) Observations:** What did we notice as the experiment proceeded? What was interesting and / or notable? There are many types of observations, use as many as possible. Write down your observations as you go through the experiment in your lab notes. Do not try to go back later and remember what you observed! Clearly indicate the date and time of your observations.

**B.) Data:** In addition to your observations include specific results of your experiment. Often charts or graphs will show your data well. Take notes and organize the data into the graph or chart later. Put any calculations that may have been done in this section. Make diagrams and /or drawings when appropriate Always label your charts, graphs, sketches and diagrams, and use colored pencils when appropriate.

**C.) Analysis:** This is where you will make unbiased analyses of the data you collected. For example, you can discuss: the general trends you see in the graphs of the data; you created or statistically significant findings; or data that does not fit with the rest.

**Conclusion:**

Spend some time thinking about this part of the experiment. Accept or reject your hypothesis. EXPLAIN why you accepted or rejected your hypothesis using the data you collected from your experiment. You should include a summary of your data to help the reader understand the your results and conclusions, but do not just restate results. Discuss the purpose and goals of the experiment in relation to the outcome. Discuss possible errors that could have occurred. Evaluate the lab and explain how it can be improved. Discuss what was learned from the lab and how it further explains the subject matter

being studied. Does this lab lead to any new questions? Were you surprised by anything?

If your experiment *failed*, you MUST identify why you think your experiment did not go as planned or expected and what were the areas of error and how that could be improved in future trials of the experiment.